

CHAPTER 6 - TRANSPORTATION DESIGN

6.01 GENERAL DESIGN REQUIREMENTS

6.02 STREETS

- 6.02.01 GENERAL
- 6.02.02 FUNCTIONAL CLASSIFICATION
- 6.02.03 ALLEYS
- 6.02.04 PRIVATE ACCESSWAYS
- 6.02.05 RIGHT-OF-WAY PAVEMENT AND AMENITY ZONE WIDTH
- 6.02.06 HALF-STREET AND FRONTAGE IMPROVEMENT CONSTRUCTION
- 6.02.07 PAVEMENT DESIGN
- 6.02.08 DESIGN SPEED
- 6.02.09 HORIZONTAL CURVES
- 6.02.10 VERTICAL CURVES
- 6.02.11 GRADES
- 6.02.12 CONCRETE CURB
- 6.02.13 INTERSECTIONS
- 6.02.14 CURB RETURN RADIUS
- 6.02.15 PARKING
- 6.02.16 LOCAL STREET DESIGN FOR ADVERSE TOPOGRAPHY
- 6.02.17 STREETLIGHTING

Design and installation of a complete streetlighting system shall be the responsibility of the developer for all streets fronting the property, including multi-use paths and connector paths associated with the development. Developments will be required to submit a lighting plan that provides pole spacing less than or equal to the maximum spacing shown in **Table 6.02.17**. The spacing shall be measured from the center of each pole. For street intersections, the through route shall maintain streetlight spacing per **Table 6.02.17** and the intersecting street shall have lights spaced one-half of the maximum frontage spacing from the intersection centerline or closer. If the proposed street grade exceeds the maximum grades shown in **Subsection 6.02.11**, the spacing shown in **Table 6.02.17** is not applicable and a site-specific photometric analysis will be required. See Project Manager for requirements.

Streetlights and streetlight infrastructure shall conform to the Standard Details. Streetlights per **Standard Detail 645, Decorative Acorn Streetlight**, are required on designated boulevards in the Pleasant Valley and Springwater Plan Districts. At the Engineer's discretion, infill development may meet requirements for streetlighting by installing new lights on existing utility poles per **Standard Detail 647**. If spacing of utility poles is substandard, additional underground-fed lights may be required along the frontage to meet lighting standards.

Streetlights are required to be installed along both sides of the street for arterials and streets within designated centers. For developments along arterial streets, where streetlighting is already provided on the other side of the street, streetlighting must be provided on both sides of the street.

Streetlight power for new lighting shall be supplied from underground. At the Engineer's discretion, the electrical conduits installed for streetlighting shall be extended to a junction box installed in the last panel of sidewalk at the property line to support future development.

The City standard for 35-foot poles is shown in **Standard Detail 644, Aluminum Davit Streetlight**. The standard for 25-foot poles is shown in **Standard Detail 643, Fiberglass Streetlight**.

All streetlighting materials and equipment installed in the public right-of-way must be listed on the City of Gresham Pre-Approved Materials List for Streetlight Equipment and Materials, with exceptions made at the Engineer's discretion. The City of Gresham Pre-Approved Materials List is available for download on the City's website.

(See table on the following page.)

Table 6.02.17 STANDARD STREETLIGHT LAYOUT AND TYPE					
FUNCTIONAL CLASSIFICATION	LIGHT HEIGHT (FT)	STREET SIDE	MAXIMUM FRONTAGE SPACING (FT)	LUMINAIRE TYPE⁴	WATTAGE LEVEL
Major Arterial ¹	35	Both Sides ²	150	Medium Cobra	Medium
Standard Arterial ¹	35	Both Sides ²	150	Medium Cobra	Medium
Minor Arterial ¹	35	Both Sides ³	160	Small Cobra	High
Major Collector ¹	35	Staggered ⁶ or One Side	170	Large Cobra	Extra-Low
Standard and Minor Collector ¹	25		120	Small Cobra	High
Local Industrial ¹	35		185	Large Cobra	Extra-Low
Local Commercial ¹	25		130	Extra-Small Cobra	High
Local Transitional ¹	25		150	Extra-Small Cobra	Medium
Local Queuing ¹	25		150	Extra-Small Cobra	Medium
Off Street Multi-Use Paths ¹	12		60	Extra-Small Cobra	Low
Shared Street ¹	14	Staggered ⁶	50	Acorn ⁵	Low
Civic Neighborhood					
Standard Arterial	164	Both Sides	85100	Acorn	High
Standard Collector	14		110	Acorn	Low
Civic Connector	14		100	Acorn	High
Civic Local	14		120	Acorn	Low
Off Street Multi-Use Paths	12	N/A	60	Acorn	Low
Downtown					
Downtown Boulevard	16	Both Sides	100	Acorn	Medium

Non-Boulevard Streets in Downtown	14		110	Acorn	Low
Off Street Multi-Use Paths	12	N/A	60	Acorn	Low
Rockwood Design District					
Designated Boulevards	44 16	Both Sides	85 100	Acorn	High
Standard Arterials ²	35		150	Medium Cobra	Medium
Local Streets Inside the Triangle ⁷	14		100	Acorn	Low
Local Streets and Collectors Outside the Triangle ⁷	14		110	Acorn	Low
Designated Centers in Pleasant Valley and Springwater					
Standard Arterial	16	Both Sides	120	Acorn	Medium
Minor Arterial	16		110	Acorn	Medium
Major Collector	14		105	Acorn	Low

¹ Applies unless otherwise noted in the table.

² For Major Arterial and Standard Arterial frontages where streetlighting isn't currently provided or where lighting is currently provided only on the development's side of the arterial street, Extra-Large Cobra Head luminaires with High wattage shall be installed at 150-foot spacing and 35-foot light height.

³ For Minor Arterial frontages where streetlighting isn't currently provided or where lighting is currently provided only on the development's side of the arterial street, Large Cobra Head luminaires with Extra-High wattage shall be installed at 160-foot spacing and 35-foot light height.

⁴ See Gresham Pre-Approved Materials List for luminaire models for the listed luminaire types.

⁵ Light poles may not be more than 10 feet off the right-of-way lines.

⁶ If lights are installed on both sides of the street in a staggered pattern, the maximum frontage spacing may be double what is shown in **Table 6.02.17**.

⁷ The Rockwood Triangle Area per *GCDC Section 7.0500* is defined as the area bound by Stark Street on the south, Burnside on the north, 181st on the west and 190th on the east.

New streetlight poles shall be installed with the face of the pole placed a minimum of 18 inches from the face of curb. Lights shall be no closer than 15 feet to a street tree trunk.

All new installations with power supplied underground shall include a service disconnect between the PGE power supply and the first streetlight junction box, as shown in **Standard Detail 649**, unless otherwise directed by the Engineer. In developments where there are fewer than four streetlights, the service pedestal may be replaced with a fused disconnect in a junction box and a separate PGE Type 1730 junction box installed between the PGE transformer and that fused disconnect junction box.

Each service pedestal shall have a lighting contactor with manual override, with a separate control circuit to a photocell installed on the nearest streetlight. Each service pedestal may have multiple lighting circuits. Copper conductor with a minimum wire size of #8 AWG are required for lighting circuits until the wire reaches the hand hole in the light pole. Wire inside the light pole shall be #10 AWG. For each circuit using copper #8 AWG wire, the total length of the circuit (one-way in feet) multiplied by the total load (in Watts) shall not exceed 1,105,750. The total load for each circuit must include the largest available system wattage for each light fixture. If the proposed circuit exceeds the allowable limit specified above, an additional circuit shall be utilized. The Project Manager may require developer to submit detailed voltage drop calculations for lighting systems with 15 or more lights.

6.02.18 STREET TREES

Street trees in the public right-of-way are required at a spacing of one tree per 35 feet for all street types and development types. A copy of the City's *Approved Tree List* can be found on the City's website. The particular species will be reviewed and approved as part of overall project submittals. A deposit for street trees to assure installation of the trees prior to occupancy may be required at the time of building permit issuance.

Minimum caliper of street trees shall be 1.75-inch. Trees planted in the clear vision area shall have a minimum caliper of 2-inches. All street trees shall have a minimum branch clearance of 8 feet above the centerline elevation of the intersection. Lower branches will need to be removed in successive years to provide a 14-foot clearance over arterial and collector streets, a 12-foot clearance over all other street functional classifications and 8-foot clearance over sidewalks. Newly planted trees shall be securely staked for the first 2 years after planting and shall be replaced if they die or are destroyed. If a tree dies and needs to be replanted, the warranty period begins again from the date City staff verifies the tree has been replaced. Trees should be planted while they are dormant which is generally between October and April. For additional standards relating to street tree planting, see **Standard Detail 642A, Street Tree Planting** and **Standard Detail 642B, Street Tree Spacing**.

Street trees being removed from the public right-of-way require a street tree removal permit and shall be cut flush with the ground surface or the stump shall be ground in place.

6.02.19 STREET NAMES AND TRAFFIC CONTROL SIGNAGE

6.02.20 PAVEMENT MARKINGS

6.03 DRIVEWAYS

Access to private property shall be permitted with the use of a concrete driveway approach, per **Standard Detail 618A or 618B**, where curbs exist and with asphalt concrete connections where no curbs exist. In the case of asphalt concrete connections, the width and depth shall match what is shown in the standard details for concrete driveway approaches. The access points with the street shall be the minimum necessary to provide access while not inhibiting the safe circulation and carrying capacity of the street. Driveways shall meet all applicable ADA regulations. If 50% or more of a driveway approach, inclusive of wings and transition ramps, is damaged, removed, or replaced, the full driveway approach, inclusive of wings and transition ramps, shall be replaced, ~~in full,~~ to ADA/City standards, except when replacement would result in the driveway being undrivable (defined as a grade break at the public to private driveway transition being greater than 18% for a crest or 13% for a sag) or if no permission can be obtained from the property owner to alter the private portion of the driveway.

One driveway per site frontage will be the normal maximum. Double frontage lots and corner lots may be limited to access from a single street, usually the lower classification street. Commercial developments with frontage greater than 250-feet may request an additional driveway if needed. If additional driveways are approved by the Engineer, a finding shall be made that no traffic hazard would result, impacts on through traffic would be minimal, projected travel demands indicate it is in the interest of good traffic operations, and adequate street frontage exists to meet the driveway spacing standards of this section. Restrictions may be imposed on driveways, such as limited turn movements, the requirement of shared access between uses, relocation or closure of existing driveways, or other access management actions.

In the following circumstances, a new driveway will not be allowed (measured to the driveway centerline):

- A. Within 30-feet of any commercial or industrial property line except when it is a shared-use driveway serving 2 or more abutting properties;
- B. Within 100-feet of the curb return of an intersecting Major or Standard Arterial street;

C. When adequate sight distance cannot be provided.

Residential driveway approaches shall be a minimum distance from adjacent property lines such that driveway approach curb wings and ramped sidewalk do not encroach on adjacent properties' frontages, unless approved by the Engineer. If shared driveways are utilized, a minimum of 7-foot of driveway width shall be on each property frontage. If an exception is granted and there is less than 7-foot width on an individual property frontage, a shared access easement shall be granted to both properties for the entire driveway width.

Table 6.03 DRIVEWAY APPROACH LOCATIONS (Minimum Distance from Driveway Centerline to Curb Return)		
FUNCTIONAL CLASSIFICATION	RESIDENTIAL	COMMERCIAL/INDUSTRIAL
Major Arterial	100 feet ^{1,3}	100 feet ¹
Standard Arterial	100 feet ^{1,3}	100 feet ¹
Minor Arterial	45 feet ³	100 feet ¹
Major, Standard, Minor Collector	45 feet ^{2,3}	100 feet ¹
Local Transitional, Industrial, Commercial	45 feet ²	45 feet
Local Queuing	45 feet ²	
Minor Access Street	45 feet ²	
Notes:		
1. Minimum distance from curb return unless this prohibits access to the site.		
2. Corner lot driveways on a frontage that is less than 75-feet shall be located no more than 7-feet from the interior property line and shall be no more than 24-feet wide.		
3. Direct access to this street may not be allowed if an alternative exists or is planned.		

All driveway approach widths shall be a minimum of 9 feet wide. Residential driveway approaches shall be a maximum of 24 feet wide but may be increased to 30 feet for 3-car garages. Commercial, industrial and multifamily driveway approaches shall be a maximum of 36 feet wide.

Driveways entering onto Arterials adjacent to street intersections shall be located beyond the prevailing queue length for traffic movements on that approach to the intersection. If this requirement prohibits access to the site, a driveway with restricted turn movements may be required.

For commercial, industrial, and multifamily developments, shared driveways and internal access between similar uses are encouraged and may be required to reduce the access points to the higher classified roadways, to improve internal site circulation, and to reduce local trips or movements on the street system. Shared driveways or internal access between uses shall be required and will be established by means of common access easements at the time of development.

For instances where the pole of a flag lot is an access easement across another property, that access easement width will serve as the property frontage width for purposes of driveway width limitations.

6.04 CLEAR VISION AREAS

6.05 SIDEWALKS

In general, new sidewalks with curbs are required for all development requiring a development permit. Sidewalks shall be buffered from the roadway by a planter strip to provide for the safety and comfort of pedestrians and shall comply with ADA regulations.

6.05.01 SIDEWALK WIDTH

6.05.02 SIDEWALK RAMPS

Table 6.05.02 is based on Gresham's evaluation of technical feasibility of constructing two directional ramps at each corner of an intersection while meeting all other ADA guidelines. Two

directional ramps, one in each direction of pedestrian travel, are required whenever technically feasible. If instances arise where an Engineer of Record can design two directional ramps and be within ADA guidelines, two ramps are required even if **Table 6.05.02** would otherwise allow for a single ramp to be constructed.

New street intersections shall incorporate two sidewalk ramps per corner, unless the elevation difference between the point of curvature (PC) and the point of tangency (PT) exceeds the values specified in **Table 6.05.02**, then a single ramp may be constructed.

Table 6.05.02 ELEVATION DIFFERENCE BETWEEN PC AND PT	
Table does not apply to curb returns that include paths and trails.	
CURB RETURN RADIUS (feet)	ELEVATION DIFFERENCE (feet)
30	2.9
25	2.3
20	1.7
15	1.1

Retrofits shall incorporate ramps that line up with existing ramps. Where curb ramps do not exist opposite the new ramps proposed as part of new frontage construction, new ramps shall be constructed on the opposite side of the street in addition to the new ramps constructed as part of the frontage. If there is no sidewalk opposite the proposed frontage construction, no new ramps are required to be installed on the opposite side of the street. All curb ramps shall be built per **Standard Detail 624, Sidewalk Ramp**, and shall meet applicable current ADA regulations. If any portion of an existing sidewalk ramp is damaged or altered in any way, the sidewalk ramp shall be replaced, in full, to ADA/City standards, pursuant to *Gresham's ADA Transition Plan*.

The placement of sidewalk ramps shall consider the direction of stormwater flows, the location of above-ground and below-ground utilities, and street grades. Other factors may also dictate sidewalk ramp location.

Per the Final Rule for Pedestrian Facilities in the Right-of-way, published in the federal register on August 8, 2023, the City may reduce the number of pedestrian crossings at intersections. Requests to reduce the number of crossings at an intersection will only be approved by the City when it is technically infeasible to do otherwise.

Per ODOT Guidance, the slope of the gutter must conform to the following limitations while also not exceeding a maximum running slope of 7.5% for the ramp or a maximum warping rate of 1.0% per foot. Warping rate is rate of change of a slope measured transversely per foot of travel longitudinally up or down a ramp.

- At intersections with stop signs or yield signs – maximum of 2%
- At signalized or uncontrolled intersections – maximum of 5%
- At mid-block – maximum shall not exceed the slope of the roadway

6.05.03 ASPHALT TRANSITION SIDEWALK RAMPS

6.06 PEDESTRIAN/BICYCLE FACILITIES